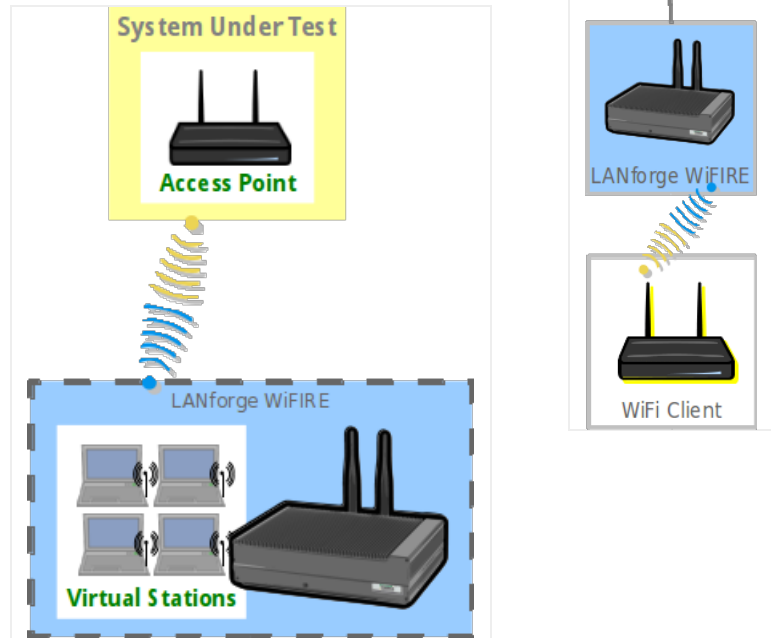


Generating Traffic for WLAN Testing

Goal: Setup and run Wireless LAN traffic using the LANforge CT523 or similar system. In this test scenario, the LANforge CT523 is used to simulate 4 virtual wireless stations that associate with a third party access point. Three traffic tests will be configured and run to demonstrate possible wireless access point tests. **NOTE:** This cookbook assumes that you have already created a VAP, and have an interface that is handing out DHCP addresses.



1. Create the virtual wireless stations.

Note: All of its virtual stations will use the same wireless AP in this example, but each station *may* be configured for a different AP as long as all stations on the same radio use APs on the same channel.

A. Go to the Port Manager

LANforge Manager Version(5.4.1)

Control Reporting Tear-Off Info Plugins

Chamber View Stop All Restart Manager Refresh HELP

Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr vAP Stations DUT Profiles Traffic-Profiles Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators RF-Generator File-IO Layer 4-7 Generic

Disp: 192.168.100.121:0 Sniff Packets Down 1 Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply VRF Display Create Modify Batch Modify

All Ethernet Interfaces (Ports) for all Resources.

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps TX
1.1.00		<input type="checkbox"/>	192.168.100.216	0	eth0		109,389,970	1,412,882	17	13,855	281,379,123	278,612	14	112,651
1.1.01		<input type="checkbox"/>	10.1.1.7	0	eth1		750,048	4,868	0	0	701,990	5,009	0	0
1.1.02		<input checked="" type="checkbox"/>	0.0.0.0	0	eth2		0	0	0	0	0	0	0	0
1.1.03		<input type="checkbox"/>	0.0.0.0	0	wiphy0		15,236,542...	16,628,...	9	20,450	11,185,167...	7,390,395	0	56
1.1.04		<input type="checkbox"/>	0.0.0.0	0	wiphy1		0	109	0	0	0	0	0	0
1.1.05		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan0	wiphy0	1,026	3	0	0	2,082	13	0	0
1.1.06		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0	0

B. Select port wiphy0 and click Create

Create VLANs on Port: 1.1.03

1 MAC-VLAN 802.1Q-VLAN Redirect Bridge Bond

2 GRE Tunnel WiFi STA WiFi VAP WiFi Monitor WiFi Virtual Radio

3 Shelf: 1 Resource: 1 (1f0350-81e8) Port: 3 (wiphy0)

Quantity: 1

Basic Settings WiFi Settings Advanced Settings

4 VLAN ID:

STA ID:

Parent MAC: 04:f0:21:38:ad:b3

MAC Addr:

DHCP-IPv4 Multiple Subnets

IP Address:

IP Mask or Bits:

Gateway IP:

#1 Redir Name:

#2 Redir Name:

5 Down Apply Cancel Ready

C. Select the **Wifi STA** button, then enter **MAC**, **Quantity**, **STA ID**, and **SSID**. Select the DHCP-IPv4 checkbox:

1 MAC-VLAN 802.1Q-VLAN Redirect Bridge Bond
 GRE Tunnel **Wifi STA** WiFi VAP WiFi Monitor WiFi Virtual Radio

2 Shelf: 1 Resource: 1 (1f0350-81e8) Port: 3 (wiphy0)

3 Quantity: 4

4 **Basic Settings** | WiFi Settings | Advanced Settings

VLAN ID:
 STA ID: 0
 Parent MAC: 04:f0:21:38:ad:b3
 MAC Addr: xx:xx:xx:*:*:xx
 DHCP-IPv4 Multiple Subnets
 IP Address:
 IP Mask or Bits:
 Gateway IP:
 #1 Redir Name:
 #2 Redir Name:

5 Down Ready

- A. In this example, all 4 virtual stations will connect to the same access point
- B. If your access point can serve DHCP, you can select the 'DHCP-IPv4' checkbox here to enable each virtual station as a DHCP client
- C. If you choose to enter IP addresses manually, the create function will increment the last octet of the IP address for each virtual station created
- D. Click **Apply** when finished

D. Verify that the virtual wireless stations are created

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	t
1.1.00			192.168.100.216	0	eth0		104,514,688	1,364,054	15	13,122	230,922,952	230,972	16	1
1.1.01			10.1.1.7	0	eth1		747,276	4,850	0	48	699,364	4,990	0	
1.1.02		<input checked="" type="checkbox"/>	0.0.0.0	0	eth2		0	0	0	0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		8,770,822,...	13,489,...	37	73,887	4,797,568,...	3,196,706	0	
1.1.04			0.0.0.0	0	wiphy1		0	109	0	0	0	0	0	
1.1.05		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan0	wiphy0	1,026	3	0	0	2,082	13	0	
1.1.06		<input checked="" type="checkbox"/>	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0	
1.1.07			10.1.5.11	0	sta0	wiphy0	2,371,710,...	1,580,197	0	35	2,443,823,...	1,608,241	0	
1.1.10			10.1.5.8	0	sta1	wiphy0	2,358,154,...	1,572,053	0	0	2,457,516,...	1,616,318	0	
1.1.11			10.1.5.9	0	sta2	wiphy0	444,146	3,281	0	0	511,478	3,871	0	
1.1.13			10.1.5.10	0	sta3	wiphy0	442,070	3,263	0	35	511,714	3,861	0	

E. Scroll to the right to view each station's link quality and other interface details

LANforge Manager Version(5.4.1)

Control Reporting Tear-Off Info Plugins

Chamber View Stop All Restart Manager Refresh HELP

Event Log Alerts Port Mgr vAP Stations DUT Profiles Traffic-Profiles Messages

Attenuators RF-Generator File-IO Layer 4-7 Generic Test Mgr Test Group Resource Mgr

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks

Disp: 192.168.100.121:0 Sniff Packets Down VRF Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply Display Create Modify Batch Modify

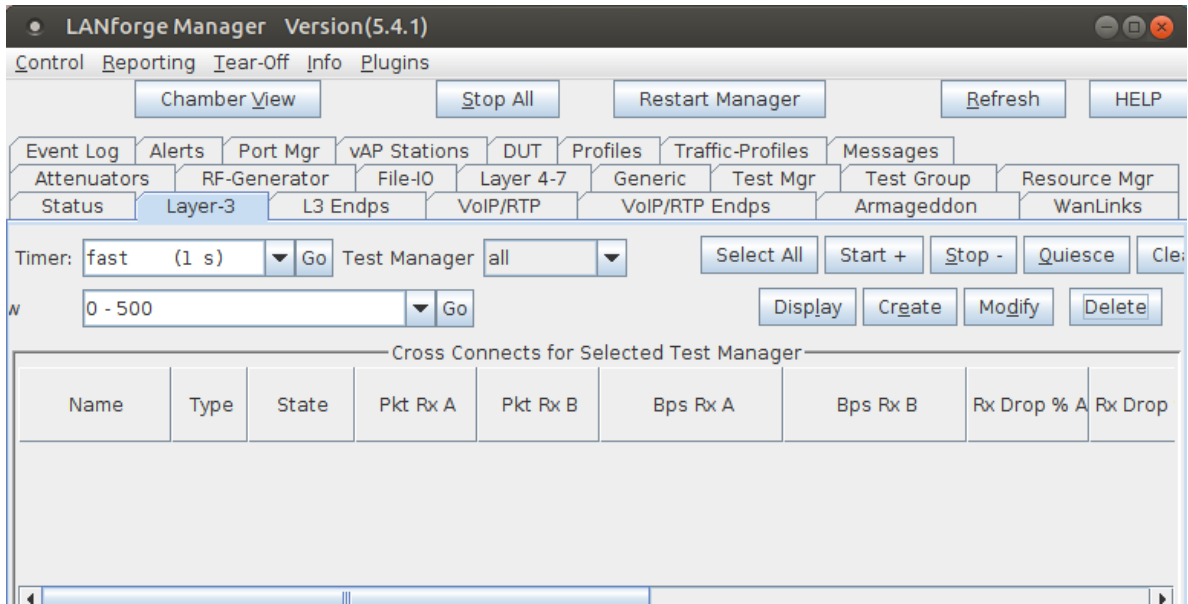
All Ethernet Interfaces (Ports) for all Resources.

d	bps TX LL	Bytes TX LL	bps RX LL	Bytes RX...	Reset	TX-Rate	RX-Rate	Status	AP	Channel	Mode	Activity	Sig
0	144,706	238,555...	16,677	137,491...	Complete	1 Gbps	1 Gbps					0	
0	0	819,124	0	863,676	Complete	1 Gbps	1 Gbps					0	
0	0	0	0	0	Complete	0 bps	0 bps					0	
0	23	4,797,5...	73,965	8,771,9...	Complete	0 bps	0 bps			0	802.11a...	1	
0	0	0	0	0	Complete	0 bps	0 bps			0	802.11a...	0	
0	0	2,082	0	1,026	Complete	0 Mbps	0 bps	NONE	Not-Ass...	0	802.11a...	1	0 dBm
0	0	0	0	0	Complete	0 Mbps	0 bps	NONE	Not-Ass...	0	AUTO 20	0	0 dBm
0	0	2,443,8...	0	2,371,7...	Complete	6 Mbps	351 Mbps	Authorized	04:F0:21...	36	802.11a...	1	-63 dBm
0	0	2,457,5...	0	2,358,1...	Complete	6 Mbps	351 Mbps	Authorized	04:F0:21...	36	802.11a...	1	-63 dBm
0	39	511,964	34	444,572	Complete	6 Mbps	351 Mbps	Authorized	04:F0:21...	36	802.11a...	1	-63 dBm
0	0	511,714	0	442,070	Complete	87.8 Mbps	351 Mbps	Authorized	04:F0:21...	36	802.11a...	1	-63 dBm

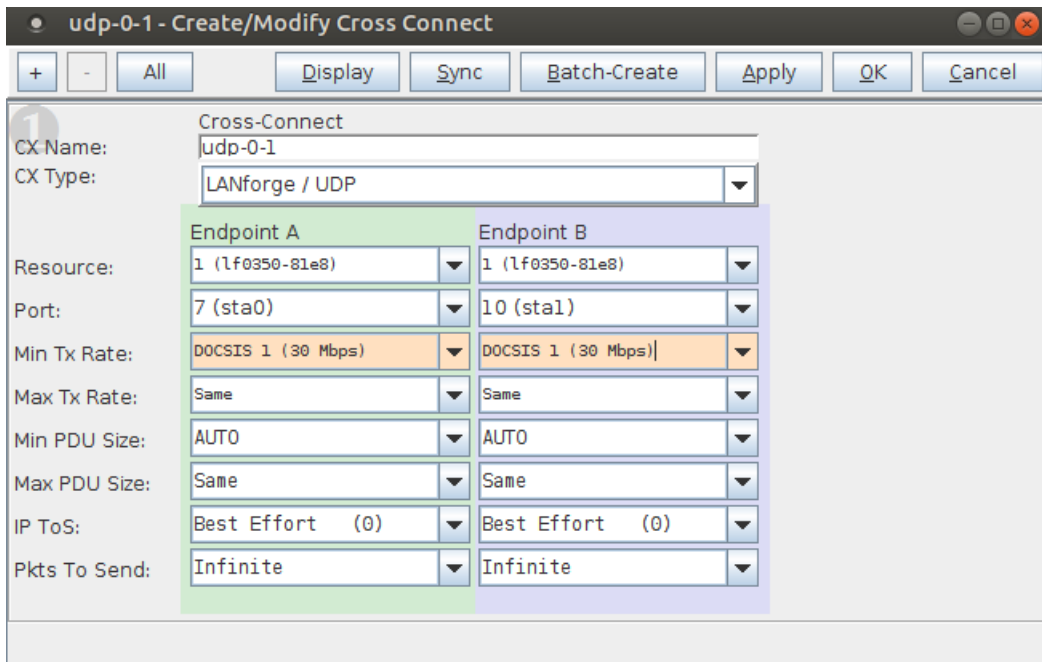
For more information see [LANforge User's Guide: Ports \(Interfaces\)](#)

2. Create Layer-3 connections between the station interfaces.

A. Go to the **Layer-3** tab and click **Create**

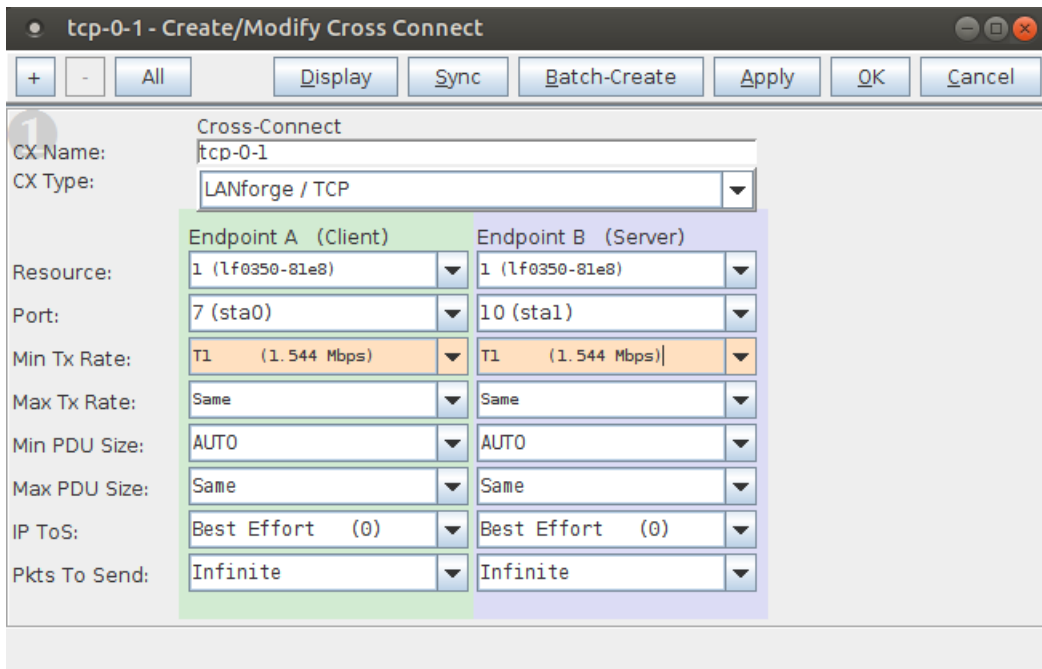


B. Create a station-to-station UDP speed test:



A. **Test 1**: sta0-sta1, UDP, 30Mbps

C. Create a station-to-station TCP speed test:

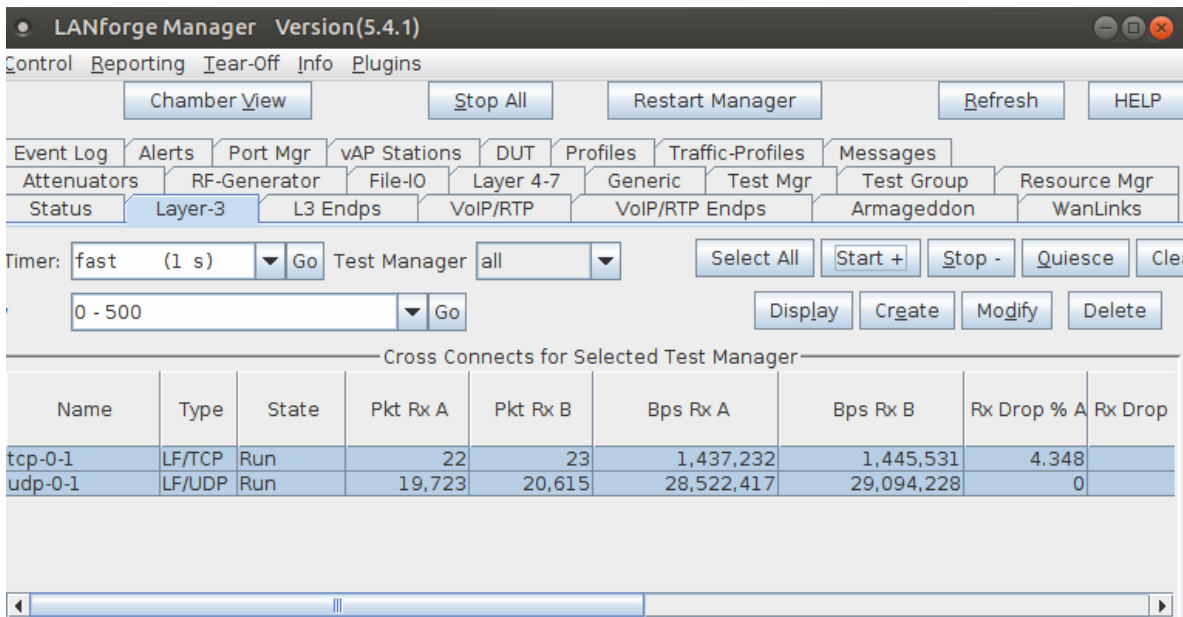


A. **Test 1:** sta0-sta1, TCP, 1.54Mbps bi-directional traffic

For more information see [LANforge User's Guide: Layer-3 Cross-Connects \(FIRE\)](#)

3. Run traffic tests concurrently, and view results.

A. This example shows little packet loss, however being that this is traffic sent wirelessly via stations, their may be interruptions due to busy channel frequencies, if needed, adjust your Tx rate accordingly.

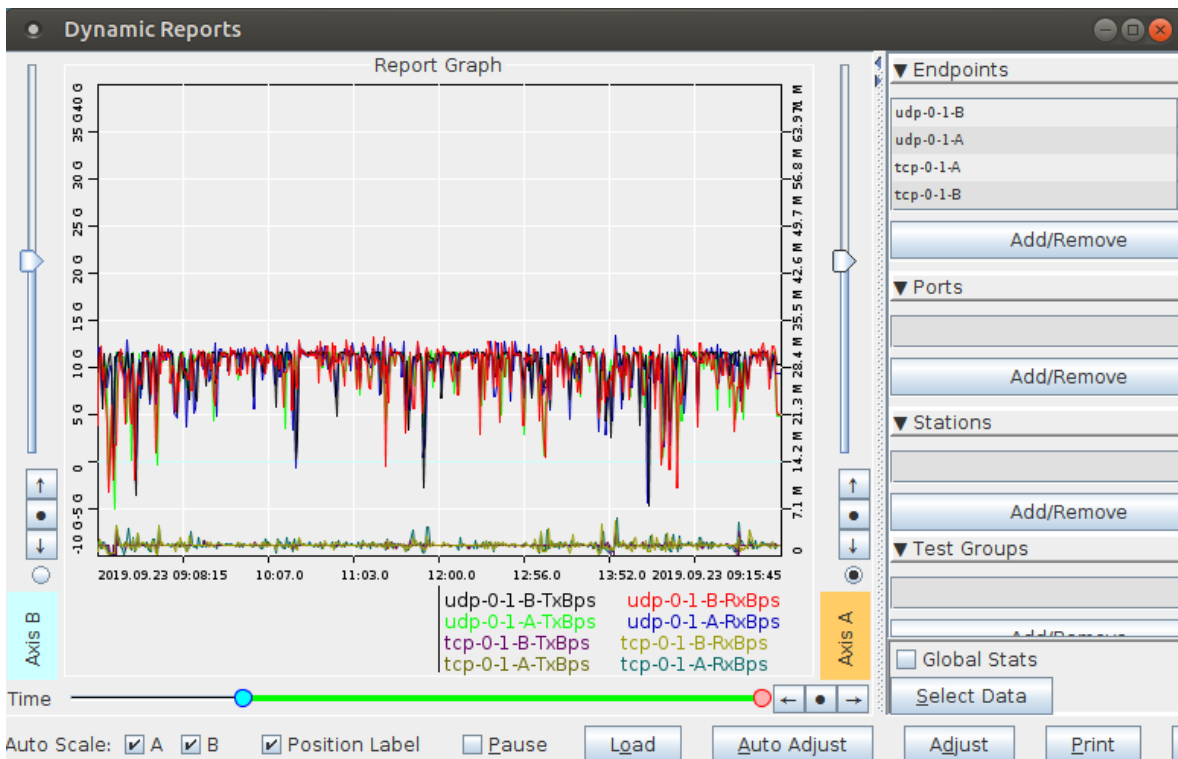


B. The **Layer-3 Endpoints** tab has more detail.

The screenshot shows the LANforge Manager interface. The 'Layer-3 Endpoints' tab is selected. The table below lists the endpoints and their performance metrics.

Name	EID	Run	Mng	Script	Tx Rate	Tx Rate (1 min)	Tx Rate (last)	Tx Rate LL
tcp-0-1-A	1.1.7.7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None	1,441,042	1,444,123	1,563,483	1,636,842
tcp-0-1-B	1.1.10.8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None	1,483,618	1,493,826	1,565,038	1,648,968
udp-0-1-A	1.1.7.5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None	27,559,037	27,565,469	29,943,347	30,596,386
udp-0-1-B	1.1.10.6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	None	28,705,922	28,804,337	30,432,095	31,337,008

C. Select the cross-connects or endpoints and Right-Click → Dynamic Report on the **L3 Endp** or **Layer-3** table to view a live report of the connections.



For more information see [LANforge User's Guide: Layer-3 Endpoints \(FIRE\)](#)

For more information see [LANforge User's Guide: Reporting](#)